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The actuarial perspective on AI: Value, responsibility, and the human element

Insights from David Sandberg on AI, data, and decision-making in insurance

On a recent episode of "**The AI Fundamentalists**" podcast, hosts Andrew Clark and Sid Mungalik sat down with David Sandberg, a seasoned actuary with over four decades of experience in insurance and InsureTech advising. The discussion explored the intersection of actuarial science, artificial intelligence (AI), and the evolving role of data in decision-making.

The role of AI in enhancing human capital

Sandberg emphasized that AI's value extends beyond automating routine tasks for efficiency and accuracy. He argued that its greater potential lies in augmenting human judgment, discernment, and critical thinking. These qualities are essential for navigating ambiguity and making accountable decisions. Citing an example from academia, he described how AI-generated essays were used to teach students to sharpen their critical faculties rather than simply outsource thinking to machines.

Small data beats big data

While the tech world obsesses over massive datasets, Sandberg argues for a counterintuitive approach: **small data often delivers better results than big data**.

He's not talking about using less information. He's talking about using *better* information, data you can trace back to its source, validate, and understand completely.

Take State Farm's approach with Ting devices that detect electrical arcing in homes. Rather than scraping vast amounts of public data about fire risk, they're building a targeted dataset from millions of policyholders' actual homes. Every data point connects to a specific source, creating what Sandberg calls "a much richer and robust way to feel like I can make valid conclusions."

The problem with big data? When paradigm shifts happen, like the 2008 financial crisis, regression analysis fails spectacularly. The models confidently declared certain events had a "one in 10,000 chance," right up until they happened.

Small data doesn't prevent surprises, but it gives you something crucial: the ability to learn from your predictions through rigorous "actual versus expected" tracking.

The human capital advantage

When you compare a company's quantitative asset and liability values to its stock price, there's usually a significant gap. That gap represents the market's assessment of human capital, which is the belief that people in the organization can create additional value beyond what the numbers show.

This human element becomes even more critical with AI. **Humans should be "end-to-end" in AI processes, while AI handles the "middle-to-middle" work.**

The real value humans bring isn't efficiency or consistency, as this is where machines excel. It's "connection, diversity, compassion, critical thinking, creativity, courage, discovery, awe, and wonder." These uniquely human capabilities become more valuable, not less, in an AI-enhanced world.

The validation imperative

Perhaps the most important lesson from actuarial practice: you must be able to validate your models continuously. Most AI systems today offer impressive accuracy rates – 80%, 85%, and even 90%. But they can't tell you which specific predictions are accurate and which aren't.

This creates what Sandberg calls the "correlation without causation challenge." You're making predictions constantly, but unless you can learn from them systematically, you're just generating sophisticated guesses.

The actuarial solution involves multiple parallel models. Just as insurance companies discovered that using both real-world and risk-free models together provided better insights than either alone, the future of AI likely lies in combining different approaches rather than seeking one perfect system.

The enterprise risk parallel

Thirty years ago, insurance companies faced fragmented risk management, where every department handled its own risks without coordination. The solution was enterprise risk management (ERM), which created centralized frameworks for understanding and managing risk across organizations.

We need something similar for AI risk management. As Sandberg notes, most CTOs already lose sleep over cybersecurity risks. Adding unvalidated AI decision-making to that mix without proper governance is a recipe for disaster.

The path forward

The actuarial approach to AI isn't about being conservative or resistant to innovation. It's about being responsibly aggressive, using powerful tools while maintaining transparency about their limitations.

Before implementing any AI system, ask the actuarial questions: What are the assumptions? How will we validate predictions? What are the failure modes? How will we know when the model is wrong?

Most importantly, remember that AI's highest value lies in enhancing human judgment, not replacing it. The goal isn't to eliminate human decision-making but instead give human decision-makers better tools while maintaining accountability for the choices they make.

In Sandberg's words, we need to "learn how to use discernment and do what humans do best, which is deal with ambiguous information, make a decision, and then be accountable for it."

That's not just good actuarial practice. It's good business.

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